

4.14 NOISE

This section describes current sources and levels of noise in the proposed Project area, and addresses concerns raised during the public scoping period regarding Project contributions to noise and impacts on people in locations such as nursing homes, hospitals, churches, or schools. Potential increases in ambient sound levels due to the Project are identified throughout its lifespan, and mitigation measures are proposed. Additionally, noise impacts from alternatives are evaluated relative to the Project.

This section specifically addresses the effects of noise generated by the Project on people; the effects on marine biota are addressed in Subsection 4.7, "Biological Resources - Marine."

4.14.1 Environmental Setting

The ambient sound level of a region is defined by the total noise generated, including sounds from natural and artificial sources. The magnitude and frequency of environmental noise may vary considerably over a day and throughout the week because of changing weather conditions and the effects of seasonal vegetative cover. Two measurements that relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level ($Leq_{(24)}$) and the day-night sound level (L_{dn}). The $Leq_{(24)}$ is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} is the $Leq_{(24)}$ with 10 decibels of the A-weighted scale (dBA) added to nighttime sound levels from 10 p.m. to 7 a.m., to account for people's greater sensitivity to sound during that period. The A-weighted scale assigns a weighting of 0 to sounds with a frequency below 10 cycles per second and a maximum weighting for sounds with a frequency of 2,000 to 5,000 cycles per second. Human response to noise depends on the magnitude and the sound frequency distribution. The human ear is more susceptible to a higher frequency than lower-frequency sounds, as reflected in the A-weighted scale. This scale assigns a weighting of 0 to sounds with a frequency below 10 cycles per second, and a maximum weighting for sounds with a frequency of 2,000 to 5,000 cycles per second.

The threshold of human hearing is approximately 10 dBA. Table 4.14-1 lists typical noise levels found in a community.

Table 4.14-1 Typical Noise Levels

bedroom at night	30 dBA
quiet suburban nighttime	40 dBA
vacuum cleaner at 10 feet (3 meters [m])	70 dBA
diesel truck at 50 feet (15 m) during daytime	90 dBA
loud rock band or jet flyover at 1,000 feet (305 m)	110 dBA

Offshore

The existing sound levels 12.2 nautical miles (NM) (14 miles or 22.5 kilometers [km]) offshore vary depending on weather conditions and ship traffic. However, the final Environmental Impact Statement for the nearby Point Mugu Sea Range (United States Department of Navy Naval Air Warfare Center Weapons Division [NAWCWD] 2002) characterized the area's average baseline noise levels at 50 to 55 dBA. As discussed in Section 4.3, "Marine Traffic," more than 5,000 commercial vessels transit the area annually. Fishing and recreational vessels also are found in the area.

Shoreline

The pipeline shore crossing would be at a location adjacent to the existing Reliant Energy Ormond Beach Generating Station. The ambient acoustic environment in the vicinity of the shore crossing is variable, according to weather conditions and the sea state, with sound levels from 45 to 55 dBA. The ambient noise environment of the proposed shore crossing is dominated by noise from the ocean and wind, with intermittent contributions from birds.

Center Road Pipeline

The proposed pipeline alignment would cross through industrial and rural agricultural areas. Relative to these uses, the existing noise levels can be attributable to a number of sources, including motor vehicles, industrial and commercial operations, air traffic from local airports, railroad transportation, and agricultural operations. Sound levels for industrial areas range from 60 to 70 dBA, and sound levels in agricultural areas and background levels are typically 40 to 50 dBA; however, typical tractors and similar mechanical equipment can produce noise levels from 75 to 85 dBA at 50 feet (15.2 m).

Line 225 Pipeline Loop

The land uses along this pipeline route include industrial (60 to 70 dBA), commercial (55 to 65 dBA), parks (50 to 60 dBA), and suburban residential areas (50 to 60 dBA during the day, and 40 to 50 dBA at night).

4.14.2 Regulatory Setting

The major laws, regulations, and ordinances governing noise in the Project areas are listed in Table 4.14-2.

Table 4.14-2 Major Laws, Regulatory Requirements, and Plans for Noise

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
Federal	
Federal Noise Control Act of 1972 (40 Code of Federal Regulations [CFR] 204)	Regulates noise emissions from operation of all construction equipment and facilities; establishes noise emission standards for construction equipment and other categories of equipment; and provides standards for the testing, inspection, and monitoring of such equipment. Gives states and municipalities

Table 4.14-2 Major Laws, Regulatory Requirements, and Plans for Noise

Law/Regulation/Plan/Agency	Key Elements and Thresholds; Applicable Permits
- <i>United States Environmental Protection Agency (USEPA)</i>	primary responsibility for noise control.
USEPA—Levels of Environmental Noise - <i>USEPA</i>	In 1974, USEPA published <i>Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety</i> . This document provides information for state and local governments to use in developing their own ambient noise standards. USEPA determined that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference.
State	
California Noise Control Act of 1973 (Health and Safety Code, Division 28) - <i>California</i>	Declares that excessive noise is a serious hazard to public health and welfare; establishes the Office of Noise Control with responsibility to set standards for noise exposure in cooperation with local governments or the State Legislature.
Local	
Ordinances of the County of Ventura - <i>Ventura County Planning Division</i>	Establishes noise standards within the county. The maximum allowable 1-hour average noise levels (L_{eq}) are as follows: 55 dBA (or ambient noise level plus 3 dBA, whichever is greater) from 6 a.m. to 7 p.m., 50 dBA (or ambient noise level plus 3 dBA, whichever is greater) from 7 p.m. to 10 p.m., and 45 dBA (or ambient noise level plus 3 dBA, whichever is greater) from 10 p.m. to 6 a.m.
City of Oxnard, Ordinance No. 2292 - <i>City of Oxnard</i>	<i>Ordinance of the City of Oxnard Concerning the Regulation of Sound</i> . Section 19-60.5, titled, "Designated Sound Zones," indicates time interval and dBA level restrictions in designated sound zones: 7 a.m. to 10 p.m.: Zone I, Residential—55 dBA; Zone II, Commercial—65 dBA; Zone III, Industrial—70 dBA 10 p.m. to 7 a.m.: Zone I, Residential—50 dBA; Zone II, Commercial—60 dBA; Zone III, Industrial—70 dBA
Santa Clarita Municipal Code, Title 11 - <i>City of Santa Clarita</i>	Chapter 11.44, "Noise Limits," Section 11.44.040, indicates time interval and dBA level restrictions in designated sound zones: Residential Zone—Day 65 dBA, Night 55 dBA; Commercial and Manufacturing Zone—Day 80 dBA, Night 70 dBA

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2 **4.14.3 Significance Criteria**

3 In general, impacts could be considered significant if any of the following apply:

- 4 • Project construction or operation noise levels exceed the local noise ordinance or
5 any applicable noise regulations promulgated on the State or Federal level at
6 locations such as residences, schools, parks, places of worship, or hospitals;
- 7 • A substantial permanent increase in ambient noise levels in the Project vicinity
8 above levels existing without the Project; and

- A substantial temporary or periodic increase, greater than 10 dBA, in ambient noise levels in the Project vicinity above levels existing without the Project.

4.14.4 Impact Analysis and Mitigation

This section describes the impacts to noise associated with construction and operation of the proposed Project. Table 4.14-3, below, is a summary of identified impacts and mitigation measures, and additional detail follows. Applicant-proposed mitigation measures (AMM) and agency-recommended mitigation measures (MM) are defined in Section 4.1, "Introduction to Environmental Analysis."

Table 4.14-3 Summary of Noise Impacts and Mitigation Measures

Impact	Mitigation Measure(s)
NOI-1: Noise generated by vessels or equipment during installation of the mooring system, floating storage and regasification unit (FSRU), and offshore pipeline could result in temporary increases in noise levels in the area, which could impact sensitive noise receptors such as recreational boaters or fishers (Class II).	MM NOI-1a. Efficient Equipment Usage. The Applicant shall operate construction equipment only on an as-needed basis during this period, and to maintain it to the manufacturer's specifications.
NOI-2: Recreational boaters and fishers at certain distances from the facility could hear noise generated by FSRU operations over the long-term (Class II).	MM NOI-2a. Silencers and Shielding. The Applicant shall use silencers and shielding on equipment on the FSRU to reduce noise emissions.
NOI-3: Tankers, shuttle vessels, or helicopters could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers (Class II).	MM NOI-3a. Limited Trips. The Applicant shall limit the number of trips by utilizing the full-capacity shuttles as much as possible. MM NOI-3b. Daytime Operations. The Applicant shall operate shuttles and helicopters during daytime hours, except during emergencies.
NOI-4: Horizontal directional drilling (HDD) could temporarily increase noise levels for sensitive receptors. Noise levels may temporarily exceed county and/or city noise ordinances or permit conditions (Class II).	AMM NOI-4a. Monitor. The work area would be monitored for noise levels. AMM NOI-4b. Enclose power unit. The drilling rig power unit would be enclosed. AMM NOI 4c. Noise Barriers. The drilling rig would be partially enclosed or noise barriers would be placed around it. AMM NOI 4d. Enclose mud pumps and engines. The mud pumps and associated engines would be partially or totally enclosed. AMM NOI 4e. Enclose generator sets. Generator sets would be totally enclosed or acoustically packaged generator sets would be used. AMM NOI 4f. Partially enclose mud mixing. Mud mixing and cleaning equipment would be partially enclosed or noise barriers would be placed around this equipment. AMM NOI 4g. Provide engine compartment treatments. Engine compartment treatments would be provided for mobile cranes and boom

Table 4.14-3 Summary of Noise Impacts and Mitigation Measures

Impact	Mitigation Measure(s)
	<p>trucks.</p> <p>AMM NOI 4h. Modify backup alarms. Backup alarms on mobile equipment would be modified.</p> <p>AMM NOI 4i. Orient loading bins. Loading bins would be oriented to minimize noise impacts on adjacent areas.</p> <p>AMM NOI 4j. Restrict use of mobile equipment. Use of mobile equipment would be restricted during nighttime hours.</p> <p>AMM NOI 4k. Enclose light set engines. Engines for the light sets would be totally enclosed.</p> <p>AMM NOI 4l. Temporary hay bales as noise barriers. Hay bales would be placed on site as a temporary noise barrier.</p> <p>AMM NOI 4m. Place silencers on all engines. Silencers on all engines would be placed on all equipment where possible.</p> <p>MM NOI 4n. Use noise blankets. During Project construction noise blankets shall be used to fully enclose equipment associated with tunneling.</p> <p>MM NOI 4o. Prohibit construction work near residences. Construction would be limited to those times allowed under local noise ordinances.</p> <p>MM NOI 4p. Limit heavy equipment activity near residences. Heavy equipment activity adjacent to residences shall be limited to the shortest possible period required to complete pipeline installation.</p> <p>MM NOI 4q. Cover the equipment engine. The equipment engine shall be covered and the Applicant shall ensure that mufflers are in good working condition.</p>
<p>Impact NOI-5: Site preparation, pipeline installation, and construction of aboveground facilities could temporarily increase noise levels for sensitive receptors, such as schools or residences. Noise levels may exceed county and/or city noise ordinances or permit conditions during the installation of the onshore pipeline and associated structures (Class II).</p>	<p>MM NOI-5a. Care of Equipment. The equipment engine shall be covered and the Applicant shall ensure that mufflers are in good working condition.</p> <p>MM NOI-5b. Restricted Work Hours. Work hours shall be restricted for all construction activities involving motorized equipment from 7 a.m. to 7 p.m. Monday through Saturday.</p> <p>MM NOI-5c. Post Signs. The Applicant shall post signs along the construction right-of-way (ROW) with approximate schedule and contact information.</p> <p>MM NOI-5d. Equipment Location. The Applicant shall locate stationary equipment, such as compressors and welding machines, away from the noise receptors to the extent practicable.</p>

Table 4.14-3 Summary of Noise Impacts and Mitigation Measures

Impact	Mitigation Measure(s)
Impact NOI-6: Additional vehicular traffic carrying workers, equipment, and materials to the construction sites could temporarily increase noise levels for residences, schools, places of worships, or hospitals (Class III).	None.
Impact NOI-7: Operations of the aboveground facilities may exceed county and/or city noise ordinances or permit conditions for the long-term (Class II).	The following also apply here: MM NOI-5a. Care of Equipment. MM NOI-5b. Restricted Work Hours. MM NOI-5c. Post Signs. MM NOI-5d. Equipment Location. MM NOI-5a – 5d Care of Equipment, Restricted Work Hours, Posting Signs, Equipment Location

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2 **Offshore Construction**3 **Impact NOI-1: Noise Generated During the Installation of the Floating Storage**
4 **and Regasification Unit (FSRU) and Offshore Pipeline**

5 *Noise generated by vessels or equipment during installation of the mooring*
6 *system, FSRU, and offshore pipeline could result in temporary increases in noise*
7 *levels in the area, which could impact sensitive noise receptors such as*
8 *recreational boaters or fishers (Class II).*

9 Construction equipment used for the offshore FSRU installation would consist of typical
10 offshore vessels, such as crane barges, anchor-handling tug supply vessels (AHTSs),
11 remote-operated vehicles (ROVs), and survey equipment. Equipment required during
12 the construction period would include an AHTS up to 15,000 horsepower (Hp), an AHTS
13 up to 12,000 Hp, two 3,200-Hp supply vessels, and two barges to transport anchors and
14 equipment.

15 Similar vessels and equipment would be used for the offshore pipeline construction,
16 including crane barges, AHTSs, ROVs, survey equipment, and diving boats and crews.
17 Dynamically positioned vessels would be used to position the pipe directly onto the
18 seafloor.

19 Although no one lives in the area, commercial, fishing, and recreational vessels transit
20 the area regularly. The crews of these vessels could encounter the construction
21 vessels or be passed by a supply vessel. These boaters would not be particularly
22 susceptible to additional noise because engine noise from their own vessels would
23 dominate. However, recreational boaters in sailboats or other non-powered vessels
24 could be impacted by the increased noise associated with construction. Because there
25 are so many commercial vessels in the area, most of these boaters would be
26 accustomed to encountering the noise associated with vessels.

During construction, there would be additional noise generated by construction vessels that would be additive to the ambient noise due to existing vessel traffic. In addition, the noise source would be concentrated in a certain area for a limited time as construction activity moves along the pipeline route. Recreational boaters could easily avoid the location of construction, and all boaters would be transient; therefore, this impact would not likely be significant.

Mitigation Measures for Impact NOI-1: Noise Generated During the Installation of the FSRU and Offshore Pipeline

MM NOI-1a. Efficient Equipment Usage. The Applicant shall:

- Operate construction equipment only on an as-needed basis during this period, and to maintain it to the manufacturer's specifications.
- Ensure that equipment engine covers are in place and mufflers shall be in good working condition for the installation of the mooring system, FSRU, and offshore pipeline.

Implementation of this mitigation measure would reduce noise levels to less than significant.

Offshore Operations

Impact NOI-2: Long-Term Noise Generated During FSRU Operations

Recreational boaters and fishers at certain distances from the facility could hear noise generated by FSRU operations over the long-term (Class II).

The FSRU would use power-generating equipment, pumps, compressors, and other rotating equipment that create noise. Sound pressure levels at a distance of 3.3 feet (1 m) are listed in Table 4.14-4 for the major noise-producing equipment that would be installed on the FSRU.

Table 4.14-4 FSRU Equipment Noise Summary

Equipment	Location	dBA in Air (at 3.3 feet [1 m])
Submerged Combustion Vaporizer	Fore	118
Booster Pump	Fore	94
LP Boil-Off Gas Compressor	Fore	90
Main Gas Generator Drivers	Aft	109
Seawater Distribution Pump	Aft	85
Fire Water Pumps	Aft	111
Fire Water Pumps	Fore	111
Ballast Water Pumps	Aft	87
Air Compressors	Aft	110

Source: C.J. Engineering Consultants 2004.

Potential impacts on workers due to noise generated on the FSRU that are addressed under Occupational Safety and Health Administration regulations are not discussed in this evaluation.

In an acoustic study conducted by the Applicant, models of the hull and deck radiation efficiency and the through-hull acoustic transmission to air were used to provide estimates of the near-field-radiated noise (C.J. Engineering Consultants 2004). These were combined with the radiated noise from the deck-mounted machinery, and then a propagation model was used to provide estimates of the airborne noise at distant locations. Based on this modeling, the equivalent airborne radiated noise for the proposed FSRU was predicted to be 67 dBA at a distance of 0.6 mile (1 km) and less than 50 dBA at a distance of 3.1 miles (5 km).

As discussed previously, noise levels are typically 50 to 55 dBA in the vicinity of the proposed FSRU (NAWCWD 2002). Given this background and the predicted noise from the operation of the FSRU of less than 50 dBA at 3.1 miles (5 km), the operating noise would not normally be noticeable 3.1 miles (5 km) or more from the unit. However, at distances of less than 3.1 miles (5 km), the operating noise may become noticeable, and at less than 0.6 mile (1 km), it could interfere with normal conversation. The safety zone surrounding the FSRU would be 1,640 feet (500 m), so no one who is unauthorized to approach the FSRU would come closer than that distance. Nonetheless, there would be a significant increase in noise levels over ambient levels within 0.6 mile (1 km) of the FSRU.

Foghorns installed on the FSRU platform would generate warning signals at 146 dBA (100 hertz [Hz]) at 3.3 feet (1 m), as required by U.S. Coast Guard regulation 33 CFR 67.10. This level is required in order for the foghorn to be audible at 2 miles (3.2 km). In addition, the device must sound a 2-second blast every 20 seconds during low visibility conditions (less than 2 miles [3.2 km] visibility). Less than 2 miles (3.2 km) visibility for the nearby coastal area off Point Mugu, California, occurs on average 6.3 percent of the time. The foghorn noise level onshore would be no greater than 37 dBA under most conditions, which would make it barely audible and therefore would not have a significant impact on onshore noise receptors.

Mitigation Measures for Impact NOI-2: Long-term Noise Generated During FSRU Operations

MM NOI-2a. Silencers and Shielding. The Applicant shall use silencers and shielding on equipment on the FSRU to reduce noise emissions.

By using silencers and noise shielding, noise generated on the FSRU would be reduced such that boaters outside the safety zone would not be adversely affected.

Impact NOI-3: Temporary Noise Generated by Support Vessels During Offshore Operations

Tankers, shuttle vessels, or helicopters could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers (Class II).

Because vessel noise can be expected to be 90 dBA 50 feet (15.2 m) away, vessel traffic could result in a temporary impact on recreational boaters, such as fishers and sail boaters, at close distances. In emergencies, the FSRU would use a helicopter; however, the number of trips is unpredictable. Noise levels from passing helicopters vary among aircraft models and atmospheric conditions. Typically, the noise from a passing helicopter ranges from 68 to 78 dBA during a flyover (at approximately 1,300 feet [396 m]) but is detectable for only 30 seconds (Santa Barbara County 2002). As noted, however, the Federal Aviation Administration's minimum flight heights would not apply to helicopters. Because the trips would be infrequent and the duration would be short, helicopter traffic would not result in a significant impact.

Mitigation Measures for Impact NOI-3: Temporary Noise Generated by Support Vessels During Offshore Operations

MM NOI-3a. Limited Trips. The Applicant shall limit the number of trips by utilizing the full-capacity shuttles as much as possible.

MM NOI-3b. Daytime Operations. The Applicant shall operate shuttles and helicopters during daytime hours, except during emergencies.

Implementation of these mitigation measures would reduce the impacts to less than significant.

Onshore Construction

Impact NOI-4: Temporary Noise Generated During Horizontal Directional Drilling (HDD)

HDD could temporarily increase noise levels for sensitive receptors. Noise levels may temporarily exceed county and/or city noise ordinances or permit conditions (Class II).

HDD would generate relatively high noise levels and would occur 24 hours per day for 45 days for the shore crossing. The equipment would consist of a drilling rig, electric mud pumps, portable generators, mud mixing and cleaning equipment, mobile cranes, forklifts, loaders, trucks, and portable light sets. The HDD equipment and corresponding noise emission levels are presented in Table 4.14-5. The worst-case noise level for the HDD activities is expected to be 102 dBA at 50 feet (15.2 m). The proposed shore crossing is located next to the Reliant Energy Ormond Beach Generating Station and would be subject to the City of Oxnard's sound ordinance for Sound Zone III Industrial Property, which limits noise levels to 70 decibels (dB) at any time of day or night. This location is located 0.5 mile (0.8 km) from the closest residences. The worst-case noise level of 102 dBA for HDD activities would exceed the ordinance limit of 70 dB and therefore would represent a significant impact.

Table 4.14-5 Construction Noise from HDD

Equipment Type	Reference dBA	Number of Devices	Average Load (percent)	Estimated Noise Level, dBA (root-mean squared [RMS]) (feet/meters)					
				50/ 15.2	100/ 30.5	250/ 76.2	500/ 152	1,000/ 305	2,500/ 762
Horizontal Boring Rig	100	1	80	99	93	85	79	73	65
Large Drilling Rig (HDD)	100	1	80	99	93	85	79	73	65
Mud Cleaner Generator	72	1	80	71	65	57	51	45	37
Mud Pumps	70	2	80	72	66	58	52	46	38
Fluid-Handling Pumps	70	4	80	75	69	61	55	49	41
Track Backhoe	85	1	50	82	76	68	62	56	48
All-Terrain Forklift	85	1	50	82	76	68	62	56	48
Light Towers	72	6	100	80	74	66	60	54	46
Heavy Lift Crane	85	1	50	82	76	68	62	56	48
18-Wheeler Truck	85	1	50	82	76	68	62	56	48
Worst-Case Result				102	96	88	82	76	68

Sources: USEPA 1971; Plog 1988; Bruel and Kjaer 1971.

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2 HDD would also occur for certain stream and irrigation courses that have yet to be
 3 determined. The impacts would be similar to those for the shore crossing, but would not
 4 require as much time. Most of the potential crossings in Oxnard are located in rural
 5 agricultural areas; however, the potential crossings in Santa Clarita are located closer to
 6 residential or industrial areas. Depending on the location of the HDD, the effects would
 7 vary, but could be significant.

8 The Applicant has incorporated the following into the proposed Project:

9 **AMM NOI-4a. Monitor.** The work area would be monitored for noise levels.

10 **AMM NOI-4b. Enclose power unit.** The drilling rig power unit would be
 11 enclosed.

12 **AMM NOI-4c. Noise Barriers.** The drilling rig would be partially enclosed or
 13 noise barriers would be placed around it.

14 **AMM NOI-4d. Enclose mud pumps and engines.** The mud pumps and
 15 associated engines would be partially or totally enclosed.

- 1 **AMM NOI-4e.** **Enclose generator sets.** Generator sets would be totally enclosed
2 or acoustically packaged generator sets would be used.
- 3 **AMM NOI-4f.** **Partially enclose mud mixing.** Mud mixing and cleaning
4 equipment would be partially enclosed or noise barriers would be
5 placed around this equipment.
- 6 **AMM NOI-4g.** **Provide engine compartment treatments.** Engine compartment
7 treatments would be provided for mobile cranes and boom trucks.
- 8 **AMM NOI-4h.** **Modify backup alarms.** Backup alarms on mobile equipment
9 would be modified.
- 10 **AMM NOI-4i.** **Orient loading bins.** Loading bins would be oriented to minimize
11 noise impacts on adjacent areas.
- 12 **AMM NOI-4j.** **Restrict use of mobile equipment.** Use of mobile equipment
13 would be restricted during nighttime hours.
- 14 **AMM NOI-4k.** **Enclose light set engines.** Engines for the light sets would be
15 totally enclosed.
- 16 **AMM NOI-4l.** **Temporary hay bales as noise barriers.** Hay bales would be
17 placed on site as a temporary noise barrier.
- 18 **AMM NOI-4m.** **Place silencers on all engines.** Silencers on all engines would be
19 placed on all equipment where possible.
- 20 Mitigation Measures for Impact NOI-4: Temporary Noise Generated During Horizontal
21 Directional Drilling
- 22 **MM NOI-4n.** **Use noise blankets.** During Project construction noise blankets
23 shall be used to fully enclose equipment associated with tunneling,
24 if residences are located within 2,000 feet (610 m) and work occurs
25 after 6 p.m.
- 26 **MM NOI-4o.** **Prohibit construction work near residences.** Construction shall
27 be limited to those times allowed under local noise ordinances.
- 28 **MM NOI-4p.** **Limit heavy equipment activity near residences.** Heavy
29 equipment activity adjacent to residences shall be limited to the
30 shortest possible period required to complete pipeline installation.
- 31 **MM NOI-4q.** **Cover the equipment engine.** The equipment engine shall be
32 covered and the Applicant shall ensure that mufflers are in good
33 working condition.

Implementation of the Applicant-proposed and Agency-recommended mitigation measures would reduce the impacts to less than significant.

Impact NOI-5: Noise Generated During Construction of the Onshore Pipeline

Site preparation, pipeline installation, and construction of aboveground facilities could temporarily increase noise levels for sensitive receptors, such as schools or residences. Noise levels may exceed county and/or city noise ordinances or permit conditions during the installation of the onshore pipeline and associated structures (Class II).

The construction of the pipeline would cause temporary increases in the ambient sound environment in the immediate vicinity of the construction sites. On-site construction noise would occur mainly from heavy-duty construction equipment (e.g., trucks, backhoes, excavators, loaders, cranes, and drill rigs). The pipeline construction equipment and corresponding noise emission levels are presented in Table 4.14-6. As indicated in the table, the worst-case noise level for the construction of the onshore pipeline, excluding HDD, would be 98 dBA at 50 feet (15.2 m). Noise from on-site construction activities may be intermittent or continuous, but only for a short time. Mobile equipment (e.g., backhoes, excavators, loaders, and cranes) may operate near a noise-sensitive receptor along the pipeline route at various times during the construction period.

The proposed Center Road Pipeline route passes by one school and several residences but mostly traverses agricultural lands. The Line 225 Pipeline Loop passes through undeveloped areas, residential areas, and industrial areas.

Some of the noise levels generated during onshore construction would exceed noise ordinances for the City of Oxnard or City of Santa Clarita. Therefore, onshore construction would generate noise levels that would have significant impacts. However, implementation of mitigation measures would reduce the noise levels.

Table 4.14-6 Construction Noise from Trenching Activities

Equipment Type	Reference dBA	Number of Devices	Average Load (percent)	Estimated Noise Level, dBA (RMS), at the Specified Distance from the Source (feet/meters)					
				50/ 15.2	100/ 30.5	250/ 76.2	500/ 152	1,000/ 305	2,500/ 762
Concrete Saw	85	1	50	82	76	68	62	56	48
Trenching Machine	85	1	80	84	78	70	64	58	50
Track Backhoe	85	1	80	84	78	70	64	58	50
Front Loader	85	1	50	82	76	68	62	56	48
Bulldozer	85	1	50	82	76	68	62	56	48
Dragline	85	1	50	82	76	68	62	56	48
Dump Truck	91	1	50	88	82	74	68	62	54

Table 4.14-6 Construction Noise from Trenching Activities

Equipment Type	Reference dBA	Number of Devices	Average Load (percent)	Estimated Noise Level, dBA (RMS), at the Specified Distance from the Source (feet/meters)					
				50/ 15.2	100/ 30.5	250/ 76.2	500/ 152	1,000/ 305	2,500/ 762
Water Truck	91	1	50	88	82	74	68	62	54
Utility Truck	85	1	50	82	76	68	62	56	48
Heavy Fork Lift	85	1	50	82	76	68	62	56	48
Lowboy Truck	85	4	50	88	82	74	68	62	54
Pipe-Stringing Truck	85	1	50	82	76	68	62	56	48
Sideboom Tractor	85	2	50	85	79	71	65	59	51
Mobile Crane	85	1	50	82	76	68	62	56	48
Pipe-Bending Machine	85	1	50	82	76	68	62	56	48
Welding Generator	72	2	50	72	66	58	52	46	38
Utility Generator	72	2	50	72	66	58	52	46	38
Air Compressor	72	2	50	72	66	58	52	46	38
Dewatering Pump	70	2	50	70	64	56	50	44	36
Hydrostatic Test Pump	70	1	50	67	61	53	47	41	33
Fill Dirt Screener	72	1	50	69	63	55	49	43	35
Sheepsfoot Compactor	85	1	50	82	76	68	62	56	48
Vibratory Roller	72	2	50	72	66	58	52	46	38
Hydraulic Tamper	72	2	50	72	66	58	52	46	38
Cement Truck	91	1	50	88	82	74	68	62	54
Cement Pump	70	1	50	67	61	53	47	41	33
Asphalt Truck	91	1	50	88	82	74	68	62	54
Asphalt-Paving Machine	85	1	50	82	76	68	62	56	48
Asphalt Roller	85	1	50	82	76	68	62	56	48
Worst-Case Result				98	92	84	78	72	64

Sources: USEPA 1971; Plog 1988; Bruel & Kjaer 1971.

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Mitigation Measures for Impact NOI-5: Noise Generated During Construction of the Onshore Pipeline

MM NOI-5a. Care of Equipment. The equipment engine shall be covered and the Applicant shall ensure that mufflers are in good working condition.

MM NOI-5b. Restricted Work Hours. Work hours shall be restricted for all construction activities involving motorized equipment from 7 a.m. to 7 p.m. Monday through Saturday.

MM NOI-5c. Post Signs. The Applicant shall post signs along the construction right-of-way with approximate schedule and contact information.

MM NOI-5d. Equipment Location. The Applicant shall locate stationary equipment, such as compressors and welding machines, away from the noise receptors to the extent practicable.

With the implementation of these mitigation measures the impact would be reduced to a less than significant level.

Impact NOI-6: Noise Generated by Traveling to the Construction Site

Additional vehicular traffic carrying workers, equipment, and materials to the construction sites could temporarily increase noise levels for residences, schools, places of worships, or hospitals (Class III).

This component of construction noise would occur mainly from commuting workers, and from a wide range of truck trips to deliver and recover materials at the work sites along the entire alignment. The procedures for bringing personnel, materials, and equipment to each work site would vary along the alignment. A construction workforce of approximately 100 to 120 people for each pipeline would be employed on the Project during the peak construction period. Truck trips would also be required to deliver heavy construction equipment, pipe, aggregate, asphalt, and other materials. An estimated 400 to 450 truck trips would be required to deliver equipment and materials to each pipeline segment. The peak noise levels associated with passing trucks (up to 88 dBA at 50 feet [15.2 m]) and commuting worker vehicles would be short term, but they could be adverse depending on the proximity of sensitive noise receptors to the travel routes and the hours of off-site construction activity. However, the peak noise levels would not exceed the significance criteria. Therefore, the impact would be less than significant and no mitigation measures would be necessary.

Mitigation Measures for Impact NOI-6: Noise Generated by Traveling to the Construction Site

The impact is less than significant and no mitigation measures are identified.

Impact NOI-7: Noise Generated During Operations Onshore

Operations of the aboveground facilities may exceed county and/or city noise ordinances or permit conditions for the long-term (Class II).

There are no known noises that would be generated by the operation of the metering station or associated valve facilities. However, noise may be generated during repair or maintenance of the pipeline. These noises would be similar to those generated during construction but would be temporary. To ensure that the levels are less than significant, the following mitigation measure would be required.

Mitigation Measure for Impact NOI-7: Noise Generated During Onshore Operations

The following also apply here:

MM NOI-5a. Care of Equipment.

MM NOI-5b. Restricted Work Hours.

MM NOI-5c. Post Signs.

MM NOI-5d. Equipment Location.

MM NOI-5a – 5d Care of Equipment, Restricted Work Hours, Posting Signs, Equipment Location

Implementation of mitigation measures would reduce impacts to less than significant levels.

4.14.5 Alternatives

4.14.5.1 No Action Alternative

Under the no-action alternative, potential short- and long-term environmental effects associated with noise identified in this subsection would not occur and existing conditions would prevail.

4.14.5.2 Alternative DWP Location - Santa Barbara Channel/Mandalay Shore Crossing/Gonzales Road Pipeline

Siting of the Project in the Santa Barbara Channel would result in offshore noise impacts similar to those discussed for the Project for both construction and operations. However, given that there is greater vessel traffic in this area, more people may hear noise generated during construction and operations. This also implies that there would be additional vessel traffic noise, so ambient noise levels would include vessel traffic. Like the proposed Project, construction noise would be temporary and recreational boaters could avoid the construction zone. However, noises generated on the FSRU

during operations would need to be mitigated using mitigation measures silencers and shielding equipment to reduce this impact to less than significant.

The shore crossing for this alternative would be at the Reliant Energy Mandalay Generating Station, compared to the Reliant Energy Ormond Beach Generating Station. Because the Reliant Energy Mandalay Generating Station is near McGrath State Beach and McGrath Lake, there may be people at the parks who would sensitive to noise generated by the HDD. However, ambient noise in this area would include noise generated by the Generating Station and vehicular traffic on Harbor Boulevard. The location would be in a non-residential area in Ventura County. Because the Ventura County noise ordinance pertains only to residential areas, the noise impact would be due to a substantial temporary increase in ambient noise levels in the Project vicinity above levels existing without the Project. Compared to the proposed shore crossing, the noise impacts would be similar and the same Applicant-proposed and Agency staff-recommended mitigation measures (NOI 4-a through NOI 4-q) would be used during construction and maintenance operations to reduce the impacts to less than significant.

The onshore pipeline route would cross through many residential neighborhoods, business districts, and agricultural areas. It would pass by six schools and St. John's Regional Medical Center. More sensitive noise receptors (i.e., residences, schools, and hospitals) would be affected by construction of this route, and there would likely be more significant noise impacts than along the proposed route. In addition, the receptors would experience, for a limited time, a noise level greater than the City of Oxnard allowable sound level of 65 dBA in the daytime for a commercial area. Therefore, this alternative would have a greater number of significant noise impacts than the proposed Center Road Pipeline route. Implementation of MMs NOI-5a through NOI-5d would help to reduce these impacts.

4.14.5.3 Alternative Onshore Pipeline Routes

Center Road Pipeline Alternative 1

This alternative would follow existing rights-of-way, public roads, and/or newly acquired easements. This alternative also would avoid all areas of dense residential housing. The land uses along the pipeline route include industrial and rural agricultural areas. Elementary and high schools, Oxnard College, Peppermint Junction, and St. John's Regional Medical Center would be located within 300 feet (91.4 m) of the pipeline construction activities. During worst-case activities, these receptors would experience, for a limited time, a noise level greater than the City of Oxnard allowable sound level of 65 dBA in the daytime for a commercial area, but this noise level could be mitigated to less than significant through implementation of NOI-5a through NOI-5d. This alternative would have a greater number of significant noise impacts than the proposed Center Road Pipeline route, but they could be mitigated so they are less than significant.

Center Road Pipeline Alternative 2

This alternative pipeline alignment would follow existing rights-of-way and/or public roads. The land uses along the pipeline route include industrial, commercial, rural agricultural, and suburban residential areas. The main existing source of noise in the Project area is vehicle traffic on local roads. Noise-sensitive land uses in the general vicinity of the Project's impact area include residences. Noise levels in suburban areas typically range from 50 to 60 dBA during the daytime and 40 to 50 dBA at night. Typical noise levels in rural areas at night range from 30 to 40 dBA. In typical urban areas, the noise levels range from 60 to 70 dBA. During worst-case activity, residences would experience, for a limited time, a noise level greater than the City of Oxnard allowable sound level of 65 dBA in the daytime for a commercial area. This noise level could be mitigated to less than significant through implementation of NOI-5a through NOI-5d. Because this alternative would traverse through more rural areas than the proposed Center Road Pipeline route, the overall noise impacts would be less significant than those of the proposed route.

Line 225 Pipeline Loop Alternative

For the comparable portion of this route, the impacts for the alternative will be identical to those for the proposed route. Impacts for the part of the alternative route that differs from the proposed route will be very similar to those for the proposed route.

4.14.5.4 Alternative Shore Crossing/Pipeline Route

Point Mugu Shore Crossing/Casper Road Pipeline

HDD would take place on Federal land on the Ventura County Naval Base. The impacts for this alternative shore crossing would be the same as those for the Arnold Road Shore Crossing/Arnold Road Pipeline alternative. Compared to the proposed shore crossing, the noise impacts would be similar and the same mitigation measures (NOI-4a through 4q and NOI-5a through 5d) would be used during construction and maintenance operations. Therefore, impacts could be reduced to less than significant.

Arnold Road Shore Crossing/Arnold Road Pipeline

Although the duration of HDD-related noise would be longer with this alternative, trenching activity would be diminished. The location would be in a non-residential area in Ventura County. Because the Ventura County noise ordinance pertains only to residential areas, the noise impact would be due to a substantial temporary increase in ambient noise levels in the Project vicinity above levels existing without the Project. Noise receptors would include beachgoers at Ormond Beach and people stationed at the Ventura County Naval Base. Compared to the proposed shore crossing, the noise impacts would be similar and the same mitigation measures (NOI-4a through 4q and NOI-5a through 5d) would be used during construction and maintenance operations. Therefore, impacts could be reduced to less than significant.

4.14.6 References

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